The testing of new varieties is continuing in the hopes of finding better varieties with all the qualities desired for production in the Central Florida area.

LITERATURE CITED

SNAP BEAN YIELDS FOLLOWING SIMULATED INSECT DEFOLIATION

G. L. GREENE AND D. R. MINNICK
Central Florida Experiment Station
Sanford
and
Department of Entomology, University of Florida
Gainesville

It is common practice for snap bean producers to use a preventive spray program to avoid defoliation by insects. It would, therefore, be desirable to know the relationship between foliage reduction and yields. Although several experiments of this nature have been conducted on soybeans, snap beans have not been studied.

Kalton et al. (4) and Weber (7) noted that soybean leaf removal of 50% and 75% had little effect on yields when leaves were removed in the prebloom stage. However, several authors (1, 2, 3, 4, 5) reported yield losses when plants were heavily defoliated in the bloom or pod set stages. It has been noted that heavy or complete defoliation when pods were well formed resulted in little difference in yields (4, 6). Camery and Weber (3) reported loss in seed quality with complete defoliation, while Begum and Eden (2) reported no significant qualitative effects from defoliation treatments.

This study with snap beans was initiated to determine the effects of leaf removal on bean yield and quality in hopes of recommending more economically oriented insect control practices.

EXPERIMENTAL PROCEDURE

Experiments were conducted on snap beans grown on fine sand soil at Sanford, Florida, during the fall of 1966, and on peat soil at Zellwood, Florida, during the spring of 1967. Fresh market Harvester snap beans, which were part of a larger planting, were used for tests. There were three treatments, each replicated four times in a randomized block design. Guard rows were left between all plots. Each plot consisted of a single row containing 50 plants. They were protected from insect defoliation by application of insecticides.

At Sanford, treatments consisted of hand defoliation of 0%, 25%, and 50% of the leaves one week prior to bloom and at bloom. Since the average plant had only four trifoliate leaves at this time, the 25% treatment was accomplished by removing the second most recent trifoliate leaf at the base of the petiole. The 50% treatment consisted of removing both the second and third most recent trifoliate leaves. The beans were harvested on October 31 and November 4 and the weights were recorded.

At Zellwood, plants were defoliated twice during the bloom stage. Treatments consisted of hand defoliation of 0%, 25%, and 50% of the leaves one week prior to bloom and at bloom. Since the average plant had only four trifoliate leaves at this time, the 25% treatment was accomplished by removing the second most recent trifoliate leaf at the base of the petiole. The 50% treatment consisted of removing both the second and third most recent trifoliate leaves. The beans were harvested on October 31 and November 4 and the weights were recorded.
Table 1.- Yields of Harvester Variety Snap Beans Following Defoliation.

<table>
<thead>
<tr>
<th>Soil type &amp; area</th>
<th>Plant age at treatment</th>
<th>Defoliation (%)</th>
<th>Yield/200 plants (lbs.)</th>
<th>Yield reduction by defoliation (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>First harvest</td>
<td>Second harvest</td>
</tr>
<tr>
<td>Fine sand (Sanford)</td>
<td>1 week prebloom</td>
<td>0</td>
<td>9.05</td>
<td>4.24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25</td>
<td>5.94</td>
<td>2.37</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50</td>
<td>3.87</td>
<td>1.50</td>
</tr>
<tr>
<td></td>
<td>During bloom</td>
<td>0</td>
<td>8.10</td>
<td>4.24</td>
</tr>
<tr>
<td></td>
<td></td>
<td>25</td>
<td>7.75</td>
<td>5.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50</td>
<td>3.50</td>
<td>2.88</td>
</tr>
<tr>
<td>Peat (Zellwood)</td>
<td>During bloom</td>
<td>0</td>
<td>32.75</td>
<td>13.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td>33</td>
<td>32.50</td>
<td>14.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>67</td>
<td>25.00</td>
<td>12.50</td>
</tr>
</tbody>
</table>

1/ At the 5% level of significance no treatment yields were significantly different from the untreated plot in the same location.

RESULTS AND DISCUSSION

Table 1 gives the total yield of 200 plants from four replications. The large difference between the yields at the two locations is probably indicative of the greater fertility of the peat soil compared to the fine sand soil. The greatest total effect of the 25% defoliation treatment was a loss of 4.98 pounds or a 37% reduction on the 1 week prebloom experiment at Sanford. With the comparable 33% defoliation treatments at Zellwood, there was no difference (Table 1). Both of the heavier defoliation treatments of 50% and 67% caused a yield reduction. The 50% defoliation treatment caused a reduction of 7.99 pounds or 59% on sand, while the 67% defoliation treatment on the peat soil caused a yield reduction of 9.00 pounds or 19%. A comparison of total yields resulting from treatments at both locations is in accordance with the information on soybeans (1, 2, 4, 5), in that heavy defoliation 1 week prebloom or at bloom causes yield reduction. However, yield reductions were not significant at the 5% level, which was probably due to the variability between replicates. The treatments did not effect pod quality, as these differences also were not significant at the 5% level even though there was little variability among treatments or replicates.

These experimental trends indicate that yield reduction begins somewhere between 33% and 67% defoliation, when the plants are defoliated in the bloom or prebloom stage. If defoliation of snap beans is of little importance in the early stages of plant growth, as these trends would indicate and as has been reported with soybeans (3, 4), spraying for control of defoliating in-
sects may not be necessary until somewhere in excess of 33% of the leaf area is removed, or the pod is in jeopardy. Further experimentation is necessary to substantiate this premise.

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LITERATURE CITED


MARGINAL LEAF BLIGHT OF LETTUCE

R. D. BERGER

Everglades Experiment Station
Belle Glade

ABSTRACT

An epiphytotic of marginal leaf blight affecting lettuce and related crops was observed in the Florida Everglades farming area in the 1966-1967 season. Laboratory tests confirmed the causal agent as Pseudomonas marginalis (Brown) Stevens. Both the field and in-transit phases of the disease probably occur each season to some degree and the potential threat should be of concern to Florida growers and shippers. Suggestions for reducing losses to marginal leaf blight are given.

A bacterial soft rot type disease of lettuce and related crops occurred in epiphytotic proportions during the 1966-1967 season in the Everglades. The disease has been identified as marginal leaf blight incited by Pseudomonas marginalis (Brown) Stevens. This report furnishes the first factual proof of the pathogen occurring in Florida although two previous reports based on symptomatology indicate the disease may have been here for many years (5, 13).

Symptoms.—The disease first began on the older, outer leaves of the plant. The initial symptom was a watersoaked area of varying proportions on the leaf margins, usually toward the leaf base. The affected tissue rapidly took on a brown, reddish or black color as the decay advanced. The involved leaf areas were soft and slimy during periods of dew, rain and high humidity, but the lesions became dry, papery and brittle when drier conditions prevailed (Figure 1). In advanced stages of the disease, whole plants were involved and each plant became

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